Appendix C3

Air Quality Impact Analysis – Industrial Density Alternative

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AIR QUALITY IMPACT ANALYSIS

111 CALEXICO PLACE PROJECT

INDUSTRIAL DENSITY ALTERNATIVE

CALEXICO, CALIFORNIA

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EXISTING CONDITIONS

METEOROLOGY/CLIMATE

The proposed project site is located in the Imperial County portion of the Salton Sea Air Basin (SSAB). The project site is in the hottest and driest part of California. The climate is characterized by hot, dry summers and relatively mild winters. Rainfall is scant in all seasons, so differences between the seasons are marked principally by differences in temperature. Average annual precipitation in the project area averages 3 inches per year.

Seasonal temperature differences in the basin are large, confirming the absence of marine influences due to the blocking action of the mountains to the west. Average monthly maximum temperatures in the project vicinity range from 109°F in July to 69°F in January. Average monthly minima range from about 38°F in January to about 75°F in July.

During much of the year, California is covered by a moderately intense high pressure system. In winter, the Pacific High retreats to the south, so that frontal systems from the North Pacific can move onto the California coast. On average, 20 to 30 frontal systems pass through California each winter. The first front usually arrives around the middle of October, and the average period of frontal activity is five to six months. Most of these systems are relatively weak by the time they reach the SSAB, however, and they become more diffuse as they move southeastward.

Spring is a transition season between the winter period of frontal activity and the generally dry summer; some precipitation continues during the early part of the season.

During the summer, the Pacific High is well developed to the west of California, and a thermal trough overlies the SSAB. The intensity and orientation of the trough varies from day to day. While the rugged mountainous country prevents a normal circulation, the influence of the trough does permit some inter-basin exchange with coastal locations through the passes. Summer is also the season with occasional moisture influx from the Gulfs of Mexico or California which causes isolated thundershowers and flash flooding (the summer "monsoon").

Fall is the transition period from the hot summer back to the season of frontal activity, but it is still very dry and temperatures are still mild.

Desert regions tend to be windy, since little friction is generated between the moving air and the low, sparse vegetation cover. In addition, the rapid daytime heating of the lower air over the desert surface leads to convection activity. The exchange between lower and upper air layers tends to accelerate surface winds during the warm part of the day when convection is at a maximum. During winter, however, the rapid cooling in the surface layers at night retards this exchange of momentum, and the result is often a high frequency of calm winds, especially at night.

During all seasons, the prevailing wind direction across the project site is predominantly from the west. Periodic winds from the south blow into Calexico from Mexicali. Formerly less strict pollution controls in Mexico resulted in elevated levels of air pollution in Calexico during periods of cross-border transport. However, current air pollution control programs in Mexico are noticeably reducing the frequency and intensity of any air pollution episodes during south to north wind events.

The mixing depth, i.e., the height available for dispersion of airborne pollutants emitted near the surface, is limited by the occurrence of temperature inversions. A temperature inversion is a layer of air in which the temperature increases with height. The temperature inversion conditions of the SSAB are quite different from those of the coastal regions of California. In coastal environments, warm, subsiding air aloft creates a lid above the shallow marine layer at the surface. The base of this subsidence inversion is perhaps 1,500 feet above the surface in coastal portions of the Los Angeles Basin. When a subsidence inversion exists over the desert, the height of the inversion base lies some 6,000 to 8,000 feet above the surface.

Nighttime surface inversions in the desert are common, especially during the cooler months. Mixing heights are predominantly 1,000 feet or less. These inversions are caused by nighttime radiational cooling of the land surface in contact with overlying air that cools more slowly. They tend to be destroyed early in the day in summer, due to intense solar radiation and heating of the land surface. In winter, however, these radiation inversions tend to persist until mid-morning, limiting mixing in the lower atmosphere to heights of 200 to 2,000 feet above the surface. "Nuisance" air quality problems in the Imperial Valley, such as dust near mining operations or odors near feedlots or wastewater plants, occur mainly late at night or early in the morning when winds are nearly calm and such radiation inversions are strongest.

AIR QUALITY SETTING

Ambient Air Quality Standards (AAQS)

In order to analyze the air quality impact of operations at the proposed 111 Calexico Place project, that impact, together with baseline air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress or infection such as asthmatics, the elderly, the very young, people weak from other disease or illness, and persons engaged in heavy work or exercise, called sensitive receptors. Healthy adults can tolerate periodic exposure to air pollution levels somewhat above these standards before adverse health effects are observed. Recent research has shown, however, that chronic exposure to ozone even at the federal clean air standard level can create unhealthful reactions through pulmonary distress. Just meeting clean air standards may therefore ultimately not be enough to protect human health such that an additional margin of safety may need to be created to achieve all clean air objectives.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The entries in Table 1 include the federal standards for chronic (8-hour) ozone exposure or for ultra-small diameter particulate matter of 2.5 microns or less in diameter (called "PM-2.5"), adopted in 1997. The Environmental Protection Agency's (EPA) authority to adopt such standards was subsequently challenged. In a unanimous decision, the U.S. Supreme Court ruled the EPA did have authority to promulgate standards without specific congressional authority, and that a cost-benefit analysis was not required for health-based standards. The Court also ruled, however, that there was an attainment schedule inconsistency between "old" and "new" standards. This inconsistency was resolved through a consent decree signed by the EPA in 2002. EPA has designated Imperial County as a "transitional" non-attainment area for the 8-hour ozone standard. "Transitional areas" are anticipated to meet the federal 8-hour standard in the near future, or already meet the standard, but do not have a sufficiently long data record to justify an "attainment" designation.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		Revoked (2006)		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	–
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m³)		–		
Lead	30-Day average	1.5 µg/m³	Atomic Absorption	–	–	–
	Calendar Quarter	–		1.5 µg/m³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m³)	–	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)	–	
	3 Hour	–		–	0.5 ppm (1,300 µg/m³)	
	1 Hour	0.25 ppm (655 µg/m³)		–	–	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer–visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

California ARB (06/26/08)

Table 2

Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Fine Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002.

Analysis of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted on June 20, 2002. The State PM-2.5 standard is more of a goal in that it does not have any specific attainment planning requirements like a federal clean air standard. The state standard became enforceable in 2003 when it was incorporated into the California Health and Safety Code. Although the Imperial Valley experiences high dust levels due to very dry soils, only a small fraction of earthen material is in the PM-2.5 size range. PM-2.5 levels are therefore not as frequently or severely above standards as are PM-10 concentrations.

Because of the strong evidence that chronic ozone exposure is more harmful than short-term hourly levels, the ARB has adopted a new ozone standard. The new standard mirrors the federal longer-term (8 hour) exposure limit. The California 8-hour ozone standard is slightly more stringent than the federal standard. It does not have a specific attainment deadline, but only that continued progress toward attainment must be demonstrated.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted.

BASELINE AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the project area are best documented from measurements made by the Imperial County Air Pollution Control District (ICAPCD). The closest air monitoring station to the project site with the most complete data record is located in Calexico at the "Ethel Street" monitor. From this data resource, one can readily infer that baseline air quality levels near the project site are occasionally unhealthful, but there are some encouraging signs that the air is slowly, but surely, getting better. Attainment may still be years away, but the frequency and magnitude of air pollution episodes, especially those considered unhealthy for all people, has dropped considerably in the last decade.

Table 3 summarizes the last six years of published monitoring data from the Ethel Street air monitoring station. PM-10 levels around Calexico exceed the state standard on a large number of days. Several of the PM-10 episodes exceed the federal standard. It had been argued by the U. S. Environmental Protection Agency that most violations of federal PM-10 standards occur due to cross-border dust transport or during high wind episodes, and therefore Imperial County should not be considered a non-attainment area for the PM-10 standard. This conclusion was not upheld by federal courts which agreed that the non-attainment designation and any associated planning requirements should remain in place.

Table 3

Air Quality Monitoring Summary
(Days Standards Were Exceeded and Maximum Observed Concentrations)

Pollutant/Standard	2002	2003	2004	2005	2006	2007
Ozone						
1-Hour > 0.09 ppm (S)	4	2	4	6	2	10
1-Hour > 0.12 ppm (F)*	4	2	5	15	3	-
8-Hour > 0.07 ppm (S)	-	-	-			20
8- Hour > 0.08 ppm (F)	1	0	0	1	1	9
Max. 1-Hour Conc. (ppm)	0.116	0.107	0.108	0.116	0.111	0.112
Carbon Monoxide						
1-Hour > 20. ppm (S)	0	0	0	0	0	0
8- Hour > 9. ppm (S, F)	4	0	1	0	1	0
Max 1-Hour Conc. (ppm)	15.6	11.8	12.5	12.4	12.4	10.4
Max 8-Hour Conc. (ppm)	11.6	8.8	10.3	9.0	9.8	7.5
Nitrogen Dioxide						
1-Hour > 0.18 ppm (S)	0	0	0	0	0	0
Max 1-Hour Conc. (ppm)	0.14	0.15	0.11	0.13	0.10	0.11
Respirable Particulates (PM-10)						
24-Hour > 50 $\mu g/m^3$ (S)	51/61	46/59	36/60	27/61	24/60	36/60
24-Hour > 150 $\mu g/m^3$ (F)	3/61	4/59	1/60	1/61	1/60	1/60
Max. 24-Hr. Conc. ($\mu g/m^3$)	373.	238.	161.	188.	164.	282.
Ultra-Fine Particulates (PM-2.5)						
24-Hour > 65 $\mu g/m^3$ (F)	6/115	4/105	1/104	2/96	5/110	1/---
Max. 24-Hr. Conc. ($\mu g/m^3$)	46.5	65.1	48.5	67.6	68.8	52.7

* standard revoked in 2006

(S) – State ambient standard; (F) = Federal ambient standard

Source: ICAPCD Air Monitoring Summaries, Calexico (Ethel Street) Monitoring Station

Summer ozone levels also routinely exceed standards, particularly the more stringent State one-hour standard. However, since 2002, there has been a dramatic improvement in ozone air quality. Since 2002, there has been an average of only four-five days above the state ozone standard, though year 2007 was the worst on record with ten violations. There have been only twelve violation of the federal eight-hour standard in six years with year 2007 containing nine of the twelve violations. Any air-shed that does not exceed federal standards more than three times in three years is considered to be in attainment. Though Calexico would have met attainment designation standards in 2006, year 2007 reverses this trend. The Calexico area, has not met all attainment designation requirements for the federal ozone standard.

Due to a combination of south to north winds, less stringent pollution controls, and strong winter temperature inversions, Calexico is one of the last areas of California where the eight-hour carbon monoxide (CO) standard is sometimes exceeded. The federal 8-hour CO standard was exceeded twice in 2003-06 (no more than three violations in three years is required for attainment). Transport from Mexicali is still a concern, but the Calexico area may soon be designated as being in attainment for the CO standard based upon the most recent data history.

Air basins where ambient air quality standards are exceeded are called "non-attainment" areas. If standards are met, they are designated as "attainment" areas. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." Federal "non-attainment" areas are considered extreme, serious or moderate as a function of deviation from standards. The current attainment designations for the project area are as follows:

Pollutant	**Exposure**	**State**	**Federal**
Ozone	1-Hour	Moderate	No Standard
	8-Hour	Unclassified*	Transitional Non-Attainment**
CO	8-Hour	Non-Attainment	Attainment/Unclassified
NO2	1-Hour or Annual	Attainment	Attainment/Unclassified
PM-10	Annual	Non-Attainment	Serious Non-Attainment
All Other	N/A	Attainment or Unclassified	Attainment or Unclassified

*- anticipated to be designated as non-attainment when designations are issued.
** - had met attainment criteria for 2004-06, but not with data from 2007.

Under the California standard, Imperial County is seen to be a moderate non-attainment for ozone and non-attainment for PM-10. Under the federal standard, Imperial County is in serious non-attainment for PM-10 and "marginal" non-attainment for 8-hour ozone.

All areas designated as non-attainment under the CAAA are required to prepare plans showing

how the area would meet air quality standards by specified attainment dates. The Air Quality Attainment Plan (AQAP) is the region's plan for improving air quality. Imperial County adopted the 1991 Air Quality Attainment Plan for Ozone and the 1993 State Implementation Plan (SIP) for PM-10.

The ozone attainment plan has not been updated since 1991 because Imperial County has a problem in that an overwhelming significant portion of its pollution is from upwind sources. An update will not be available until the significance of these upwind sources has been quantified by the ICAPCD.

The applicable PM-10 air quality plan is the SIP developed in 1993. At the time of the 1993 SIP PM-10 adoption insufficient data were available for demonstrating attainment. However, the PM-10 plan includes a range of measures intended to achieve attainment of the national PM-10 standards in the Imperial Valley Planning Area. ICAPCD has applied for special status as "attainment but for emissions emanating outside the U.S.". Imperial County has determined that heavy influence of emissions is coming from northwestern Mexico, especially Mexicali. In October of 2003, after a lawsuit with the Sierra Club concerning international trans-border emissions, the U.S. Court of Appeals ordered EPA to reclassify the Imperial Valley as "serious non-attainment" for PM-10. This ruling required the ICAPCD to enact more stringent pollution control requirements for particulate pollution sources. Rule 800 was strengthened to require more stringent PM-10 dust control for a variety of emissions sources. Updates to the 1993 PM-10 SIP are pending.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Many air quality impacts from dispersed mobile sources, i.e., the dominant pollution generators affecting the proposed project, often occur hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual source is generally immeasurably small. The ICAPCD has therefore developed suggested significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The ICAPCD CEQA Air Quality Handbook (2007) states that any projects in Imperial County with daily emissions that exceed any of the following thresholds should be considered as having an individually and cumulatively significant air quality impact:

Pollutant	Threshold
ROG	55
NOx	55
CO	550
PM-10	150
SOx	150
PM-2.5	55

Projects that do not exceed the above thresholds are considered Tier I projects. If the project-related emissions are below the above thresholds, and if standard mitigation measures are implemented as per the CEQA Handbook, then emissions impact may be considered less-than-significant, and a mitigated negative declaration (MND) is considered the appropriate form of CEQA clearance. If these thresholds are exceeded, the project is considered a Tier II project, and an EIR is considered to be required.

For Tier I projects, construction activity impacts are considered to be mitigated to a less-than-significant level by implementation of effective and comprehensive mitigation measures found in Section 7.1 of the ICAPCD CEQA Air Quality Handbook. While a Lead Agency may elect to quantify construction activity emissions, the CEQA emphasis should be on mitigation, particularly for PM-10. If the project size for any proposed commercial development exceeds 10 acres, even for Tier I projects, implementation of additional feasible discretionary mitigation measures are required beyond the standard menu required for all projects regardless of size.

For any Tier II project, the ICAPCD requires at a minimum, the preparation of a Comprehensive Air Quality Analysis Report (CAQAR). The CAQAR must document the requirement to implement all feasible mitigation measures. In the quantification of construction activity emissions, the following emission levels for Tier II projects should be considered as having a potentially significant temporary air quality impact:

Pollutant	Thresholds
PM-10	150 lbs/day
ROG	75 lbs/day
NOx	100 lbs/day
CO	550 lbs/day

Construction emissions that exceed these thresholds should be considered for additional mitigation beyond the mandatory and discretionary measures specified in the CEQA Handbook.

CONSTRUCTION IMPACTS

Construction activities will generate dust from surface disturbance and equipment exhaust from heavy off-road equipment. The indicated project components have the following estimated completion years:

Casino, Casino Hotel and Quality Restaurant	2012
Retail, Fast Food Restaurant and Hotel	2012
Industrial Park and Office Uses	2018

Construction emissions for each of the three above project components were calculated separately. Those with a 2012 opening year are then added together to provide total emissions when projects construction is simultaneous. For those activities with an opening year of 2012, the URBEMIS2007 model indicates that the maximum simultaneous project disturbance size during grading will be 13.1 acres (3.4 acres for the Casino component and 9.7 acres for the Retail component).

ICAPCD rules in Regulation VIII require use of standard control measures for all construction projects. With mandatory use of these measures, the accepted fugitive dust (PM-10) emissions factor is stated to be 10.0 pounds per acre per day (California Air Resources Board). Project-related construction activity PM-10 emissions will be 131 pounds per day as a worst-case condition, or less than the 150 pounds per day significance threshold.

PM-10 Fugitive Dust = 13.1 acres x 10 pounds/acre/day = 131 pounds/day

The ICAPCD CEQA Air Quality Handbook contains a number of standard dust control measures that should be implemented at all construction sites. For commercial sites larger than ten (10) total acres, such as the 111 Calexico Place project, use of additional discretionary measures beyond the standard dust control program is required. The menu of standard measures and of candidate discretionary measures is included in the mitigation discussion later in this document.

In addition to particulate matter, construction activities will generate exhaust emissions from on-site equipment, (mainly NOx from diesel equipment), and reactive organic gases (ROG) from application of paints and coatings. ROG and NOx are precursors to regional ozone formation. If temporary construction activity emissions are generated in substantial amounts during the warmer months (the "smog season"), they could have a potentially significant impact.

Exhaust emissions from typical construction equipment during site clearing and grading activities were calculated using the California ARB URBEMIS2007 computer model. Emissions were calculated with the following default equipment "fleets":

Casino		
Grading	**Construction**	**Paving**
Grader (1)	Generator Set (1)	Paver (1)
Tractor/Backhoe (1)	Forklift (2)	Roller (1)
Dozer (1)	Tractor/Backhoe (1)	Paving Equipment (2)
Water Truck (1)	Crane (1)	Cement Mixer (4)
	Welder (3)	Tractor/Backhoe (1)

Retail		
Grading	**Construction**	**Paving**
Grader (1)	Generator Set (1)	Paver (1)
Tractor/Backhoe (2)	Forklift (2)	Roller (1)
Dozer (1)	Tractor/Backhoe (1)	Paving Equipment (2)
Water Truck (1)	Crane (1)	Cement Mixer (4)
	Welder (3)	

Office and Industrial Park		
Grading	**Construction**	**Paving**
Grader (1)	Generator Set (1)	Paver (1)
Tractor/Backhoe (2)	Forklift (2)	Roller (1)
Dozer (1)	Tractor/Backhoe (1)	Paving Equipment (2)
Water Truck (1)	Crane (1)	Cement Mixer (4)
	Welder (3)	

The California ARB's URBEMIS2007 Version 9.2.4 computer model was also used to estimate daily mitigated emissions during grading and finish construction, as shown in Table 4. With the use of all available mitigation, peak daily construction activity emissions of all pollutants are below thresholds and are reduced to less-than-significant, with the exception of ROG during painting and coating. The emissions mitigation measures are detailed in the "Mitigation" section of this report.

ROG emissions may exceed the ICAPCD threshold by more than two hundred percent during construction and painting, even with application of paintings and coatings using low-VOC. Mitigation of this impact might be accomplished by using pre-coated building materials and using high pressure-low volume (HPLV) paint applicators, but not to a level of insignificance.

EPA's "Compilation of Air Pollutant Emission Factors", (AP-42), states that the primary zone of dust soiling nuisance is within 100 feet of the activity itself. The closest residences to any construction activities are far outside the zone of dust soiling impact. Project construction will be a one-time source that will replace a chronic source of dust generation (agricultural tilling and harvesting). Both the distance separation from any substantial numbers of sensitive receivers and the long-term dust reduction benefit support a finding of a less-than-significant PM-10 impact during construction if all available control measures are implemented.

Table 4
Industrial Density- Construction Activity Emissions (pounds/day)

Casino Component Activity 2012	ROG	NOx	CO	SO_2	PM-10 Fug.	PM-10 Exhst.	PM-10 Total	PM-2.5 Fug.	PM-2.5 Exhst.	PM-2.5 Total	CO_2
Grading 2010											
Pre-Mitigation	3.1	25.1	13.9	0.0	33.7	1.3	34.9	7.1	1.2	8.2	2,314.5
Post-Mitigation	3.1	25.1	13.9	0.0	8.7	1.3	9.9	1.8	1.1	2.9	2,314.5
Construction, Painting and Paving 2011											
Pre-Mitigation	49.3	36.9	51.9	0.0	0.1	2.8	2.9	0.0	2.5	2.6	4,916.6
Post-Mitigation	45.2	32.4	51.9	0.0	0.1	0.8	0.8	0.0	0.7	0.7	4,916.6
ICAPCD Threshold	75	100	550	-	-	-	150	-	-	-	-

Retail Component Activity 2012	ROG	NOx	CO	SO_2	PM-10 Fug.	PM-10 Exhst.	PM-10 Total	PM-2.5 Fug.	PM-2.5 Exhst.	PM-2.5 Total	CO_2
Grading 2010											
Pre-Mitigation	4.3	33.8	19.3	0.0	96.7	1.8	98.5	20.2	1.7	21.9	3,091.5
Post-Mitigation	4.3	33.8	19.3	0.0	24.8	1.8	26.6	5.2	1.7	6.8	3,091.5
Construction, Painting and Paving 2011											
Pre-Mitigation	129.0	41.2	101.7	0.1	0.2	2.7	3.0	0.1	2.5	2.6	7,835.0
Post-Mitigation	117.2	36.8	101.7	0.1	0.2	0.7	1.0	0.1	0.7	0.7	7,835.0
ICAPCD Threshold	75	100	550	-	-	-	150	-	-	-	-

Table 4 Continued
Industrial Density-Construction Activity Emissions (pounds/day)

Total 2012 Activity	ROG	NOx	CO	SO_2	PM-10 Fug.	PM-10 Exhst.	PM-10 Total	PM-2.5 Fug.	PM-2.5 Exhst.	PM-2.5 Total	CO_2
Grading 2010											
Pre-Mitigation	7.4	58.9	33.2	0	130.4	3.1	133.4	27.3	2.9	30.1	5,406.00
Post-Mitigation	7.4	58.9	33.2	0	33.5	3.1	36.5	7	2.8	9.7	5,406.00
Construction, Painting and Paving 2011											
Pre-Mitigation	178.3	78.1	153.6	0.1	0.3	5.5	5.9	0.1	5	5.2	12,751.6
Post-Mitigation	162.4	69.2	153.6	0.1	0.3	1.5	1.8	0.1	1.4	1.4	12,751.6
ICAPCD Threshold	75	100	550	-	-	-	150	-	-	-	-

Office/ Industrial 2018	ROG	NOx	CO	SO_2	PM-10 Fug.	PM-10 Exhst.	PM-10 Total	PM-2.5 Fug.	PM-2.5 Exhst.	PM-2.5 Total	CO_2
Grading 2016											
Pre-Mitigation	3.0	21.9	15.5	0.0	84.4	1.1	85.5	17.6	1.0	18.6	3,091.8
Post-Mitigation	3.0	18.6	15.5	0.0	7.8	0.2	8.0	1.6	0.2	1.8	3,091.7
Construction, Painting and Paving 2017											
Pre-Mitigation	112.2	37.6	87.4	0.1	0.4	2.1	2.5	0.2	1.9	2.0	12,901.4
Post-Mitigation	101.9	34.7	87.4	0.1	0.4	0.9	1.3	0.2	0.8	0.9	12,901.4
ICAPCD Threshold	75	100	550	-	-	-	150	-	-	-	-

Source: URBEMIS2007 Model, Output in Appendix

Construction equipment exhaust contains carcinogenic compounds that may create an elevated cancer risk to off-site populations. Quantification of this risk assumes continuous emissions for 70 years, 365 days per year, 24 hours per day, and that the receiver remains outside his/her residence for 600,000+ hours. Grading activity will constitute a minute fraction of this worst-case exposure duration, and daytime meteorology in Imperial County is highly favorable to excellent pollution dispersion. Prevailing wind directions are similarly not toward the closest residences to the site. Diesel exhaust exposure risk is therefore unquantifiable, but small and less-than-significant. Consistent with prudent avoidance of any cancer-causing exposure risk, reasonably available control measures are recommended for diesel equipment to be used for site grading.

OPERATIONAL SOURCE IMPACTS

The proposed project will create around 53,265 net new trips per day upon completion the entire project. The regional emissions from this level of trip generation were calculated using the California Air Resources Board URBEMIS2007 computer model. The model was run with "rural" default trip lengths to reflect longer travel distances in the Calexico area to obtain goods and services. The results are shown in Table 5. Maximum daily emissions from project traffic, plus minor "area source" emissions such as personal care or cleaning products, paints, and solvents, natural gas combustion, etc., exceed the adopted operational significance thresholds for ROG, NOx, CO and PM-10 for all project components.

If a given impact is individually significant, then the combined impact of this project and substantial forecast Calexico area growth should be considered as cumulatively significant for regional air quality. Cumulative growth will delay the ultimate attainment of all clean air standards compared to a no-growth alternative. However, emissions control programs are in various stages of implementation to reduce the cumulative impact of existing elevated air pollution levels plus the additional effects of anticipated growth. Because of complex issues of cross-border air pollution transport, the ultimate attainment date of all standards is uncertain.

As seen in Table 5, the project clearly contributes to the regional inability to attain the ozone standard based upon ICAPCD's recommended significance thresholds. The mobile source emissions from project implementation may create a potentially significant regional air quality impact. The health effects of excessive air pollution exposure were summarized in Table 2. Project-related emission levels for the two ozone precursor pollutants (ROG and NOx) as well as CO could exceed the threshold by as much as or over one thousand percent. No reasonable level of mitigation could reduce such "excessive" levels to a less-than-significant level.

Table 5
Project-Related Operational Emissions (lb/day)
Industrial Density

"Area Sources"	2.3	3.3	7.3	0.0	0.0	0.0	3,839.5
On-Road Vehicles	157.1	326.1	2,164.7	1.5	265.0	53.5	157,694.3
TOTAL	**159.4**	**329.4**	**2,172.0**	**1.5**	**265.1**	**53.5**	**161,533.8**
Significance Threshold	**55**	**55**	**550**	**150**	**150**	**NA**	**NA**

2012 Restaurant and Retail	**ROG**	**NOx**	**CO**	**SOx**	**PM-10**	**PM-2.5**	**CO_2**
"Area Sources"	3.8	5.7	9.4	0.0	0.0	0.0	6,812.0
On-Road Vehicles	305.8	637.3	4,228.4	2.9	517.6	104.4	308,098.9
TOTAL	**309.6**	**643.0**	**4,237.8**	**2.9**	**517.6**	**104.4**	**314,910.9**
Significance Threshold	**55**	**55**	**550**	**150**	**150**	**NA**	**NA**

2018 Total Project w/ Office Uses	**ROG**	**NOx**	**CO**	**SOx**	**PM-10**	**PM-2.5**	**CO_2**
"Area Sources"	10.8	10.6	21.1	0.0	0.1	0.1	12,583.6
On-Road Vehicles	366.6	673.8	4,848.9	5.3	939.7	182.7	571,784.2
TOTAL	377.4	684.4	4,870.1	5.3	939.8	182.8	584,367.8
Significance Threshold	**55**	**55**	**550**	**150**	**150**	**NA**	**NA**
Percent of Threshold	**686**	**1,244**	**885**	**4**	**627**	**NA**	**NA**

Source: URBEMIS output in Appendix

In order to mitigate the emissions produced by the operation of new commercial or residential developments, the Imperial County Board of Supervisors approved Rule 310 to the District's Rules and Regulations. Rule 310 establishes a program to mitigate indirect source emissions though the creation of off-site mitigation, through payment of an operational development fee or through some combination of both. Of-site mitigation can be accomplished by developer sponsored programs to retire polluting equipment from service. Such programs could include electrification of diesel-powered equipment such as pumps or compressors. It could also include subsidizing the acquisitions of new buses or conversion of existing diesel-powered vehicles for school districts or transit operators.

Any inability to achieve a net zero position though emissions controls on existing sources, may be off-set by payment of a one-time "in-lieu" fee to allow the ICAPCD to fund other pollution control programs. The fee in 2008 for commercial uses is $1.60 per square foot. For phased developments, the fee is due at the time of obtaining a building permit for each particular phase. Total Phase I development would comprise approximately 650,000 square feet. The "in-lieu" fee required by Rule 310 at current rates would be close to one million dollars.

However, a number of considerations will reduce the net air quality impact compared to the levels quantified above. The proposed casino will intercept a fraction of existing gaming traffic that currently travels to Yuma or San Diego with much longer driving distances. The project-related traffic generation for the gaming component thus substantially already exists on County roadways.

If the project is not developed, the currently underdeveloped property could be reactivated as active agricultural uses. Agricultural uses would generate chronic emissions of dust from soil disturbance and secondary emissions from chemicals or equipment exhaust. Agricultural activity emissions would thus off-set a portion of any project-related air pollution emissions.

It should further be noted that a development plan has been approved for this site that already anticipates a given level of regional air emissions. The regional air quality impact of the proposed project is therefore not a "new" impact. Project implementation would intensify the anticipated level of development for this site, but the regional emissions increase is only a fraction of the estimated total. Given further that a very large part of the air quality problem in Imperial County is due to sources from Los Angeles or Mexico, fractional differences in County air pollution emissions will have a only a limited air quality effect. Concurrent "net zero" in-County off-sets will have only a limited benefit because much of the air quality problem derives from out-of-County sources.

MICROSCALE IMPACT ANALYSIS

Micro-scale air quality impacts have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for carbon monoxide (CO). However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no "hot spots" anywhere in Southern California, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in the project

area. If the worst-case intersections in the highly-urbanized areas have no "hot spot" potential, any impacts near the projects semi-rural location will be well below thresholds with an even larger margin of safety.

To verify this conclusion, a CO screening analysis was performed at the closest most impacted intersections surrounding the project. One-hour CO concentrations were calculated on the sidewalks adjacent to these intersections. Peak one-hour levels (ppm above background) are shown in Table 6.

Existing peak one-hour local CO background levels in 2007 in the project vicinity were 10.4 ppm. Combined worst-case background (10.4 ppm) plus local (2.7 ppm) equate to one-hour CO levels of 13.1 ppm which are below the most stringent one-hour standard of 20 ppm . Micro-scale impacts are considered not significant.

Table 6
Microscale-Industrial Density
A. M. One-Hour CO Concentrations (ppm)

Intersection		Existing & Casino	Existing & Phase I	2015	2015 & Casino	2015 & All
I-8 WB/	Dogwwod	0.5	0.5	0.6	0.4	0.6
I-8 EB/	Dogwwod	0.5	0.6	0.6	0.5	0.7
I-8 WB/	Bowker	0.1	0.1	0.3	0.3	0.3
I-8 EB/	Bowker	0.1	0.1	0.4	0.4	0.4
Dogwwod/	Dannenberg	0.5	0.5	0.4	0.5	0.5
Dogwwod/	McCabe-N	0.3	0.3	NA	NA	NA
Dogwwod/	McCabe-S	0.3	0.4	0.4	0.4	0.5
McCabe/	Bowker	0.1	0.1	0.4	0.4	0.4
Dogwwod/	Abatti	0.3	0.4	0.3	0.4	0.5
Dogwwod/	Heber	0.5	0.3	0.5	0.5	0.7
SR-111/	Heber	1.4	1.4	0.2	0.2	0.2
Heber/	Yourman	0.1	0.1	0.1	0.1	0.1
Heber/	Bowker	NA	NA	NA	NA	NA
Heber/	Bowker	0.1	0.1	0.4	0.4	0.4
Dogwwod/	Willoughby	NA	NA	NA	NA	NA
Dogwwod/	Willoughby	0.4	0.6	0.4	0.5	0.7
Jasper/	Pitzer	0.1	0.1	0.2	0.2	0.3
Jasper/	Scaroni	0.1	0.4	0.2	0.3	0.6
Jasper/	SR-111	1.3	1.4	0.7	0.9	1.0
Jasper/	Yourman	0.2	0.2	NA	NA	NA
Jasper/	W Site Ent	0.1	NA	NA	NA	NA
Jasper/	C Site Ent	0.1	NA	NA	NA	NA
Jasper/	Rockwood	NA	NA	0.7	0.7	0.8
Jasper/	Meadows	<0.1	0.1	0.5	0.5	0.6
Jasper/	Bowker	0.1	0.1	0.5	0.5	0.5
Dogwwod/	Cole	0.2	0.2	0.3	0.3	0.3
Cole/	Scaroni	0.9	1.0	0.6	0.5	0.7
SR-111/	Cole	1.4	1.4	0.6	0.6	0.7
Cole/	Yourman	0.9	1.0	0.7	0.7	0.8
Cole/	Meadows	0.6	0.6	0.5	0.5	0.6
Cole/	Bowker	0.2	0.3	0.3	0.4	0.4
SR-98/	Cole	0.5	0.5	0.3	0.3	0.4
SR-98/	Dogwwod	0.4	0.4	0.3	0.3	0.3
SR-98/	SR-111	1.6	1.6	1.2	1.2	1.3
SR-98/	Rockwood	0.8	0.8	0.5	0.4	0.5
SR-98/	Meadows	1.1	1.1	0.8	0.9	0.9
SR-98/	Bowker	0.2	0.2	0.2	0.2	0.2

Table 6 (continued)
Microscale-Industrial Density
P. M. One-Hour CO Concentrations (ppm)

Intersection		Existing & Casino	Existing & Phase I	2015	2015 & Casino	2015 & All
I-8 WB/	Dogwwod	0.6	1.0	0.9	0.6	1.1
I-8 EB/	Dogwwod	0.8	0.9	1.0	0.8	1.3
I-8 WB/	Bowker	0.1	0.1	0.3	0.6	0.3
I-8 EB/	Bowker	0.1	0.1	0.4	0.4	0.5
Dogwwod/	Dannenberg	0.9	1.1	0.8	0.8	1.0
Dogwwod/	McCabe-N	0.4	0.6	NA	NA	NA
Dogwwod/	McCabe-S	0.5	0.8	0.5	0.6	0.9
McCabe/	Bowker	0.1	0.2	0.4	0.4	0.5
Dogwwod/	Abatti	0.5	0.8	0.5	0.6	0.8
Dogwwod/	Heber	0.5	0.9	0.6	0.6	0.9
SR-111/	Heber	1.8	2.1	0.5	0.5	0.5
Heber/	Yourman	0.2	0.2	0.2	0.2	0.2
Heber/	Bowker	NA	NA	NA	NA	NA
Heber/	Bowker	0.1	0.2	0.4	0.4	0.5
Dogwwod/	Willoughby	NA	NA	NA	NA	NA
Dogwwod/	Willoughby	0.5	1.1	0.6	0.7	1.1
Jasper/	Pitzer	0.1	0.5	0.3	0.3	0.6
Jasper/	Scaroni	0.3	1.3	0.3	0.4	1.5
Jasper/	SR-111	2.0	2.7	1.3	1.4	1.9
Jasper/	Yourman	0.2	0.4	NA	NA	NA
Jasper/	W Site Ent	0.1	NA	NA	NA	NA
Jasper/	C Site Ent	0.2	NA	NA	NA	NA
Jasper/	Rockwood	NA	NA	1.3	1.4	1.9
Jasper/	Meadows	0.1	0.2	0.9	0.9	1.1
Jasper/	Bowker	0.1	0.3	0.4	0.6	0.8
Dogwwod/	Cole	0.4	0.5	0.4	0.4	0.6
Cole/	Scaroni	1.0	1.3	0.7	0.8	1.1
SR-111/	Cole	2.2	2.6	0.6	0.7	1.0
Cole/	Yourman	1.3	1.5	1.1	1.1	1.3
Cole/	Meadows	0.8	1.1	0.7	0.7	1.0
Cole/	Bowker	0.3	0.4	0.4	0.4	0.5
SR-98/	Cole	0.6	0.8	0.4	0.4	0.6
SR-98/	Dogwwod	0.4	0.5	0.3	0.3	0.4
SR-98/	SR-111	2.0	2.3	1.8	1.8	2.3
SR-98/	Rockwood	1.0	1.0	0.7	0.8	0.7
SR-98/	Meadows	0.7	0.9	0.6	0.7	0.9
SR-98/	Bowker	0.3	0.3	0.2	0.2	0.3

GEOTHERMAL POWER PLANT AIR QUALITY IMPACTS

The Heber Geothermal Company (HGC) power plant emits small amounts of gaseous pollutants that may be unhealthful and/or cause a nuisance. Such emissions are within the operator's permitted authority to emit. The previous absence of any substantial population in the project vicinity has minimized the potential for any adverse impacts.

A risk assessment was conducted in 1994 by the ICAPCD in accordance with guidelines provided by the California Air Pollution Control Officers Association (CAPCOA). The CAPCOA risk assessment requires that the community health hazard be represented by a Maximum Exposed Individual (MEI). An MEI is defined as a resident continuously exposed for a 70-year lifetime at an offsite residence maximally impacted by facility emissions.

There are no residential uses planned for the project site where a sensitive receptor would be exposed for 24-hours per day/ 7-days per week for 70-years. Only short term hotel occupancies are anticipated. Additional exposed receptors could be the on-site office employees or site staff, estimated to be exposed for no more than 40 hours per week for a time span of much less than 70 years. The risk assessment analysis assumed exposure for 168 hours per week, or 420% in excess of the assumed 111 Calexico Place employment. Nevertheless, health impacts from the Geothermal Plant were evaluated for the 111 Calexico project.

The HGC facility emits reportable amount of hydrogen sulfide (H_2S), ammonia (NH_3), and benzene (C_6H_6). Off-site exposures of H_2S or NH_3 near the HGC plant on Pitzer Road are primarily at levels that are perceived as odor nuisances which diminish with increasing distance from the source. Benzene is a known carcinogen. Ammonia derives mainly from the condensate flow line and is characterized by a pungent odor typically experienced around fertilizer tanks or cattle urine. The reported daily release rate in November 1999 was 842 pounds per day. Under normally good atmospheric dispersion conditions in Imperial County, detectable ammonia odor is confined to the immediate power plant vicinity.

Hydrogen sulfide is mainly a component of the non-condensable gases (NCG) released by the facility. Carbon dioxide (CO_2) is the main NCG released. CO_2 is a "greenhouse gas," but a greater amount of CO_2 would be released if fossil fuel were burned to generate electricity. H_2S has a distinctive "rotten egg" odor. It is detectable at extremely low concentrations. Geothermal plants, on average, emit only five percent as much CO_2 per kilowatt generated than do fossil-fueled power plants. H_2S is the pollutant emitted from numerous geothermal power plants that causes the greatest odor conflict with neighboring sensitive uses. HGC reports that ambient air quality standards for H_2S are not exceeded, but that people can detect H_2S at levels well below the ambient standard. This results because the standard is an hourly average, but a short "whiff" at levels well above the average can create annoyance even if the one-hour average is within acceptable limits.

Imperial County APCD has not issued any equipment notices of violation to the plant, and the plant has not been cited for any nuisance violations. This suggests that the plant operates within

allowed parameters. The lack of any nuisance complaints, however, could also be due to a lack of any substantial existing development downwind of the plant. Project implementation could change that situation.

In the latest published power plant emissions inventory, H_2S emissions were reported at 96 pounds per day. A screening level dispersion analysis using the SCREEN3 computer model was performed in 2001 on this emission level with a predicted one-hour average H_2S level of 20 parts-per-billion (ppb) at the project boundary closest to HGC. The California one-hour standard is 30 ppb. Because short-term H_2S levels could exceed substantially exceed the average, clearly perceptible short-term H_2S odor could be experienced by on-site sensitive receptors.

This conclusion does not reflect emissions control upgrades by HGC. The California Air Resources Board no longer identifies HGC as an important emissions source in its Community Health Air Pollution Information System (CHAPIS). Possible plant boundary odor also does not consider that planned outdoor uses such as hotel pools or dining patios would be located well away from the northwest corner of the project site. The combined effects of enhanced controls and increased turbulent dispersion with distance will substantially reduce possible occasional plant odor detectability at outdoor project uses.

Benzene is a powerful carcinogen. Benzene and diesel exhaust particulates are the two principal sources of cancer risk from breathing the air in California urban environments. Because of the normally good atmospheric dispersion and low development density/ traffic in Imperial County, airborne cancer risk is low except in the immediate vicinity of the international border and adjacent Mexicali. In 2002, the HGC plant emitted 65 pounds of benzene per day.

The Imperial County APCD conducted a risk prioritization of all County facilities. The resulting screening level health risk for the HGC plant was an excess cancer risk of 74 in a million (http://o2.arb.ca.gov:9000/pub/plsql/risk...). Any facility with a screening score of more than 10 in a million is a high-risk facility. However, a refined health risk assessment (HRA) reports an excess cancer risk of only 0.15 in a million for the maximum individual cancer risk (MICR).

The HGC health risk assessment (1994) predicted the following risk levels:

Cancer Risk	HGC Plant Boundary	55 in a million
	Nearest Home	1.1 in a million
Acute Risk Index	HGC Plant Boundary	4.4
	Nearest Home	0.35

A cancer risk of more than 10 in a million, or an acute risk index exceeding 1.0 would be considered a significant deterrent to residential uses. In 1994, the risk levels at the nearest home (Scaroni Ranch), 600 yards from the HGC plant boundary) was less than significant. Today, benzene emission levels have been reduced, and are anticipated to be substantially reduced over the next 70 years. The closest point of the project is also more than twice as far as the ranch

house. Furthermore, the proposed project is comprised of hotel, commercial and industrial uses. There is no planned site use that would logically have a 70 year, 365 day/year, 24 hour/day outdoor exposure assumed in the risk assessment.

Emissions conditions at the plant vary from year to year, and source characteristics such as plume exhaust velocity, volume, etc. are data that are not in the public domain. The developer does not have sufficient information on existing plant conditions and on anticipated plant life to prepare an updated impact assessment. All permanent on-site commercial and office uses should be advised that the HGC facility is known to emit materials that are odorous or carcinogenic, but that any approved uses will be within an impact "footprint" considered acceptable for that use.

GREENHOUSE GAS EMISSIONS

Setting

The issue of global climate change alleged to be caused by greenhouse gases (GHG) is currently one of the most important and widely debated scientific, economic and political issues in the United States. Climate change is a shift in the "average weather" that a given region experiences. This is measured by the changes in temperature, wind patterns, precipitation, and storms, including the potential for more extreme or more frequent severe weather condition. While the effects of climate change may occur on a global, regional, or local basis, the impacts are believed to result from changes in the global climate of the earth as a whole (i.e., an increase in the concentration of certain gases in the atmosphere commonly referred to as "greenhouse gases"). Global climate change can occur naturally, as in the case of an ice age.

Substantial changes in the global climate have occurred in the past (particularly on a geologic time scale of thousands or millions of years). The issue of global climate change differs from the previous shifts in that the current changes are believed by some to be occurring at a more rapid rate and magnitude. The earth's atmosphere is semi-transparent to incoming sunlight (short-wave radiation), yet it is partially opaque to out-going heat radiation (long-wave radiation). The partial opacity is created by vibrational absorption from molecules such as carbon dioxide or water vapor. The atmosphere thus behaves similar to window glass in an automobile or greenhouse. Gases that contribute to this heat-trapping effect are called "greenhouse gases" (GHG). The Earth's surface temperature would be about 61°F colder than it is now if it were not for the natural heat trapping effect of greenhouse gases. The increased accumulation of these gases in the earth's atmosphere over the last 200 years is believed to have contributed to the observed increase in the earth's temperature (global warming). GHGs consist of water vapor, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Some GHGs such as carbon dioxide are emitted to the atmosphere through natural processes and as well as human activities. Others (e.g., fluorinated gases) are created and emitted solely through human activities.

Regulation

Efforts to address global climate change began in the 1980s. Many of the activities to address climate change, however, involve reduction in the amount of fossil fuels used, which is ultimately a function of energy conservation and efficiency.

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling greenhouse gas emissions. As a result, the Climate Change Action Plan was developed to address the reduction of greenhouse gases in the United States. The plan consists of more than 50 voluntary programs.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—chlorofluorocarbons (CFCs), halons, carbon tetrachloride, and methyl chloroform—were to be phased out by 2000 (2005 for methyl chloroform).

California Code of Regulations Title 24 Part 6, enacted in 1978, established Energy Efficiency Standards for residential and nonresidential buildings in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest amendments were made in October 2005. According to the California Energy Commission (CEC), since the energy efficiency standards went into effect in 1978, it is estimated that Californian residential and nonresidential consumers have reduced their utility bills by at least $15.8 billion. The CEC further estimates that by 2011, residential and nonresidential consumers will save an additional $43 billion in energy costs (CEC 2007).

In 2005, the CEC adopted new energy efficiency standards. All projects that apply for a building permit on or after October 2005 must adhere to the new 2005 standards (CEC 2005). According to the CEC, reducing energy use has been a benefit to all. Building owners save money, Californians have a more secure and healthy economy, the environment is less negatively impacted, and our electrical system can operate in a more stable state. The 2005 Standards (for residential and nonresidential buildings) are expected to reduce the growth in electricity use by 478 gigawatt-hours per year (GWh/y) and reduce the growth in natural gas use by 8.8 million therms per year (therms/y). The savings attributed to new nonresidential buildings are 163.2 GWh/y of electricity savings and 0.5 million therms. Additional savings result from the application of the Standards on building alterations. In particular, requirements for cool roofs, lighting, and air distribution ducts are expected to save about 175 GWh/y of electricity. These savings are cumulative, doubling in two years, tripling in three, etc. These energy efficiency measures reduce the amount of electricity and heating supplies needed to service the project.

California Assembly Bill 1493 (Pavley) enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB will apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18% in 2020 and 27% in 2030 (CARB 2004).

The science of global climate change is evolving and remains subject to extensive debate and uncertainties. During the past five years, the United States government has allocated over $29 billion for scientific research into global climate change and for climate-change related programs (WH 2007). Currently, because of perceived scientific debate and uncertainties, and because of articulated regulatory impediments, the U.S. EPA does not regulate so-called greenhouse gas pollutants resulting from motor vehicle emissions, those pollutants that are alleged to contribute significantly to global warming. However, in *Massachusetts v. U.S. EPA*, the Supreme Court held that the Clean Air Act did give the U.S. EPA the authority to regulate GHG emissions from vehicles.

Notwithstanding the wide scale lack of U.S. EPA regulation of greenhouse gas emissions, in 2006, the California State Legislature adopted AB 32 (Nunez), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. On or before June 30, 2007, CARB was required to publish an early action list of discrete greenhouse gas emission reduction measures that can be implemented. Emission reductions shall include carbon sequestration projects and best management practices that are technologically feasible and cost-effective.

Neither California Appendix G Guidelines, nor any other CEQA regulation specifically require an EIR to address a project's impact on greenhouse gases. However, recent court decisions have mandated that CEQA environmental analysis must consider a project's impact on GHGs. Senate Bill 97 (Dutton, 2007) requires the Governor's Office of Planning and Research (OPR) to develop amendments to CEQA guidelines on analysis and mitigation of GHG impacts by January 1, 2010. Prior to the promulgation of formal guidelines, OPR has issued a technical advisory on addressing climate change through CEQA. (June 19, 2008).

The interim policy recommended by OPR for addressing climate change through CEQA includes the following:

- Identify/quantify GHG emissions
- Establish a threshold of significance
- Mitigate impacts if a finding of a significant impact is made.

Because of the global nature of the GHG issue, it is difficult to determine if the impacts of any project should be considered cumulatively significant. The typical course of action in most recent CEQA documents for substantial projects is to make a finding of cumulative significance. They conclude that all reasonably available control measures should thus be adopted and implemented at the project level.

Global Warming Potential

Greenhouse gases have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (EPA 2006l). One teragram of carbon dioxide equivalent (Tg CO_2 Eq.) is essentially the emissions of the gas multiplied by its GWP. One teragram is equal to one million metric tons. The carbon dioxide equivalent is a good way to assess emissions because it gives weight to the GWP of the gas. A summary of the atmospheric lifetime and GWP of selected gases is as follows:

Global Warming Potentials and Atmospheric Lifetimes

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)
Carbon Dioxide	50-200	1
Methane	12+- 3	21
Nitrous Oxide	120	310
HFC-23	264	11700
HFC-134a	14.6	1300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CF_4)	50000	6500
PFC: Hexafluoroethane (C_2F_6)	10000	9200
Sulfur Hexafluoride (SF_6)	3200	23900
Source: EPA 2006		

Inventory

An analysis of data compiled by the United Nations Framework Convention on Climate Change (UNFCCC), indicates that in 2004, total GHG emissions were 20,135 Tg CO_2 Eq., excluding emissions/removals from land use, land use change, and forestry (UNFCCC 2006). In 2004, the U.S. contributed the most GHG emissions (35% of global emissions). In 2004, in the U.S., total GHG emissions were 7074.4 Tg CO_2 Eq., which is an increase of 15.8 percent from 1990 emissions (EPA 2006l). In 2005, total U.S. GHG emissions were 7,260.4 Tg CO_2 Eq. (EPA 2007b). Overall, total U.S. emissions have risen by 16.3 percent from 1990 to 2005, while the U.S. gross domestic product has increased by 55 percent over the same period (EPA 2007b).

California is a substantial contributor of global greenhouse gases as it is the second largest contributor in the U.S. and the sixteenth largest in the world (CEC 2006). During 1990 to 2003, California's gross state product grew 83 percent while GHG emissions grew 12 percent. While California has a high amount of GHG emissions, it has low emissions per capita. In 2004, California produced 492 Tg CO_2 Eq. (CEC 2006), which is approximately seven percent of the U.S. emissions. The major source of GHG in California is transportation, contributing 41 percent of the state's total GHG emissions (CEC 2006). Electricity generation is the second largest source, contributing 22 percent of the state's GHG emissions.

Emissions from fuel use in the commercial and residential sectors in California decreased 9.7 percent over the 1990 to 2004 period (CEC 2006). According to the CEC, the decrease in greenhouse gases demonstrates the efficacy of energy conservation in buildings (Title 24 requirements) and appliances. The new 2005 Title 24 Standards will further reduce greenhouse gas emissions. The decrease in greenhouse gases attributed to these sources is even more substantial when the population increase is California is considered.

Currently, there is no known GHG emissions data specifically segregated for Imperial County.

Health Effects

Health effects that may be observed on a global scale from global climate change may arise from temperature increases, climate-sensitive diseases, extreme events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat related problems include heat rash and heat stroke. In addition, climate sensitive diseases may increase, such as those spread by mosquitoes and other disease carrying insects. Those diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture, which would have negative human health consequences including the spreading of disease and death. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution (EPA 2006).

Water Vapor

Description and Physical Properties: Water vapor (H_2O) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant. In the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization (EPA 2006). The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a greenhouse gas, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so forth. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there are also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Health Effects: There are no health effects from water vapor. When some pollutants come in contact with water vapor, they can dissolve and then the water vapor can be a transport mechanism to enter the human body.

Sources: The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.

Carbon Dioxide

Description and Physical Properties: Carbon dioxide (CO_2) is an odorless, colorless natural greenhouse gas.

Health Effects: Outdoor levels of carbon dioxide are not high enough to result in negative health effects. Current concentrations of carbon dioxide in the ambient air are about 370 ppm. The National Institute for Occupational Safety and Health (NIOSH) reference exposure level is 5,000 ppm, averaged over 10 hours in a 40-hour workweek. The short-term reference exposure level is 30,000 ppm, averaged over 15 minutes. At those levels, potential health problems are as follows: headache, dizziness, restlessness, paresthesia; dyspnea (breathing difficulty); sweating, malaise (vague feeling of discomfort); increased heart rate, cardiac output, blood pressure; coma; asphyxia; and/or convulsions (NIOSH 2005).

Sources: Carbon dioxide is emitted from natural and anthropogenic (human) sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood. In 1999, the concentration of carbon dioxide in the atmosphere was 367 ppm, which is an increase from the concentration during the Industrial Era (1750) of 280 ± 10 ppm (IPCC 2001, Chapter 3). The concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (IPCC 2001). Some predict that this will result in an average global temperature rise of at least 2° Celsius (IPCC2001).

Sinks: Sinks are mechanisms by which a gas or aerosol is taken out of the atmosphere. Carbon dioxide is removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks.

Methane

Description and Physical Properties: Methane (CH_4) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and it's lifetime in the atmosphere is brief (10-12 years), compared to other greenhouse gases.

Health Effects: Methane is not toxic. The immediate health hazard is that it may cause burns if it ignites. It is highly flammable and may form explosive mixtures with air. Methane is violently reactive with oxidizers, halogens, and some halogen-containing compounds. Methane is also an asphyxiant and may displace oxygen in an enclosed space (OHSA 2003).

Sources: Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane (EPA 2006b). Other anthropogenic sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Description and Physical Properties: Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas.

Health Effects: Nitrous oxide can cause dizziness; euphoria, and sometimes slight hallucinations. In small doses, it is harmless. In some cases, heavy and extended use can cause Olney's Lesions (brain damage).

Sources: Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 ppb. Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load (EPA 2006). It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in racecars.

Sinks: Nitrous oxide can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction.

Chlorofluorocarbons

Description and Physical Properties: Chlorofluorocarbons (CFCs or "freons") are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface).

Health Effects: CFCs are no longer manufactured; therefore, it is not likely that health effects would be experienced. Nonetheless, in confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (hearth frequency too high or too low) or asphyxiation (NIOSH 1989).

Sources: CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years (NOAA 2005).

Hydrofluorocarbons

Description of Physical Properties: Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Of all the greenhouse gases, they are one of three groups with the highest global warming potential. The HFCs with the largest measured

atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2) (EPA 2006j). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant to replace "freons". Concentrations of HFC-23 and HFC-134a are now about 10 parts per trillion (ppt) each (EPA 2006). Concentrations of HFC-152a are about 1 ppt.

Sources: HFCs are man made for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Description and Physical Properties: Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetraflouromethane (CF_4) and hexafluoroethane (C_2F_6). Concentrations of CF_4 in the atmosphere are over 70 ppt (EPA 2006).

Health Effects: High concentrations of CF_4 can cause confusion, dizziness, or headache and may have effects on the cardiovascular system, resulting in cardiac disorders (NIOSH 1997).

Sources: The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride

Description and Physical Properties: Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated, 23,900. Concentrations in the 1990s were about 4 ppt (EPA 2006).

Health Effects: In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

Sources: Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

GHG Emissions Impacts

There are currently no adopted CEQA significance thresholds for GHG emissions and possible climate change. Senate Bill 97 (Dutton, 2007) requires the Governors Office of Planning and Research (OPR) to develop amendments to the California CEQA guidelines to provide guidance on analysis and mitigation of GHG emissions.

In the interim, OPR has developed informal guidance to lead agencies on steps that should be taken to address climate change in CEQA documents (OPR Technical Advisory, June 19, 2008). The recommended procedures include the following:

1. Identify/quantify GHG emissions, including emissions associated with vehicular traffic, energy consumption, and water usage and construction activities. Water usage GHG emissions have not yet been allocated by region and land use such that they cannot be accurately quantified.

2. Determine impact significance. Climate change is ultimately a cumulative impact. Various options exist in interpreting potential significance. One may consider that any project has a less-than-significant individual impact and is not cumulatively substantial on a global scale. One may alternately conclude that all new sources of GHG emissions will at least cumulatively exacerbate global warming and all project impacts should be considered as significant. The threshold recommended for this project is to consider the global impact to be individually limited, but cumulatively considerable.

3. Mitigate impacts. Reasonable and feasible mitigation must be adopted and implemented in response to the recommended fining that the projects climate change impact is considered cumulatively significant. Given the limited ability to substantially reduce GHG emissions on a project level, adoption of a Statement of Overriding Considerations may be necessary for the residual impact after application of reasonably available mitigation measures.

Maximum project-related GHG emissions would occur at project-build out (2018). During intervening years, project operations and construction activities will overlap, but the worst-case consideration will be at full build-out. GHG emissions were therefore quantified for 2018.

Project-related GHG emissions from transportation sources dominate the project GHG burden. The URBEMIS2007 computer model explicitly calculates CO_2 emissions for each proposed project land use. A small amount of non-CO_2 GHG's will also be generated in vehicular exhaust. The California Climatic Action Registry recommends an adjustment of 3.7 percent to convert CO_2 emissions to CO_2-equivalent emissions for a typical California vehicle fleet. The URBEMIS2007 output for a 2018 build-out shows the following daily CO_2 emissions from project related travel of approximately 543,000 miles per day:

Industrial (7 days/week)	–	472,027.9 lb/day
Office (5 days/week)	–	99,756.3 lb/day

Annually, the two types of uses will create the following CO_2 emissions:

Industrial	–	86,145 tons/year
Office	–	12,968 tons/year
Total	–	99,113 tons/year
CO_2 Equivalent	–	102,781 tons/year

Energy consumption will be an important secondary source of GHG emissions. Energy consumption was estimated using SCAQMD CEQA Handbook factors for various land use as follows:

Use	**Size (sq. ft)**	**Electricity**		**Heating**	
		Factor (a)	**Usage (b)**	**Factor (c)**	**Usage (d)**
Quality Restaurant	100,000	47.45	4745	2.9	3.48
Fast Food Restaurant	10,000	47.45	474	2.9	0.35
Hotel (600 sq. ft./room)	120,000	9.95	1194	4.8	6.91
Motel (400 sq. ft./room)	80,000	9.95	796	4.9	4.61
Regional Shopping Center	411,000	13.55	5569	2.9	14.30
Office Park	120,000	12.95	1554	2.0	2.88
Casino	93,880	47.45	4455	2.9	3.27
Industrial	615,000	4.35	2675	2.0	14.76
Total	-	-	21,462	-	50.56

(a) KWH/unit/year
(b) MWH/year
(c) cubic foot/unit/month
(d) million cubic foot/year

The CCAR Protocols recommend a CO_2 emission rate and a CO_2-equivalent conversion as follows:

Electricity (California)	878.71 lb/MWH (1.0012 adj.)
Natural Gas	119,600 lb/MM cubic foot (1.0035 adj.)

Application of the CCAR rates and adjustments leads to the following annual CO_2-equivalent emissions:

Transportation –	102,781 tons
Electricity –	9,441 tons
Heating –	3,034 tons
Annual Total	115,256 tons

In 2004 (the last published state inventory), California generated 541,000,000 tons of CO_2-equivalent GHG per year. If the 2004 rate continued unchanged to 2018, the total project would generate 0.021 percent of the statewide total. As previously recommended, this impact should be considered as individually limited, but cumulatively considerable. All reasonably available mitigation should be pursued.

Greenhouse Gas Emissions Reduction Measures

GHG reduction options on a project-level basis are similar to those measures designed to reduce criteria air pollutants (those with ambient air quality standards). The transportation sector was shown to be the largest emitter of greenhouse gases, emitting roughly 88 percent of project-related greenhouse gases in 2018. Measures that reduce trip generation or trip lengths, measures that optimize the transportation efficiency in the project vicinity, and measures that promote energy conservation within the development will reduce GHG emissions. Additionally, carbon sequestering can be achieved through urban forestry measures.

Project-specific mitigation recommendations to reduce the global cumulative impact from project implementation include the following:

Land Use and Transportation

- Integrate project development and retail amenities (services and shopping opportunities) to minimize out-of-project travel in order to help reduce vehicle miles traveled resulting from discretionary automobile trips.

- Apply advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people goods and services.

- Incorporate features into project design that would accommodate the supply of frequent, reliable and convenient public transit.

- Implement street improvements that are designed to relieve pressure on the most congested roadways and intersections.

- Limit idling time for commercial vehicles, including delivery and construction vehicles.

Energy Conservation

- Recognize and promote energy savings measures beyond Title 24 requirements for commercial projects.

- Where feasible, include in new buildings facilities to support the use of low/zero carbon fueled vehicles, such as the charging of electric vehicles from green electricity sources.

- Replace traffic lights, street lights, and other electrical uses to energy efficient bulbs and appliances.

- Construct non-residential buildings to meet LEED (Leadership in Energy and Environmental Design) Silver Certification where possible.
- Maximize use of low pressure sodium and/or fluorescent lighting.
- Require acquisition of new appliances and equipment to meet Energy Star certification.

Urban Forestry

- Plant trees or vegetation to shade buildings and thus reduce heating/ cooling demand.
- Select landscaping that is fast-growing while minimizing water demand to sequester carbon while reducing electrical loads associated with regional water transportation.

Programs to Reduce Solid Waste

- Create incentives to increase recycling and reduce generation of solid waste by commercial and office users.
- Participate in green waste collection and recycling programs for landscape maintenance.

Given the level of project related CO_2-equivalent emissions (over 100,000 tons per year at build-out), implementation of the above measures will not reduce emissions to a level that would not still be considered cumulatively considerable.

MITIGATION

CONSTRUCTION EMISSIONS MITIGATION

Project-related air quality impacts were shown to be significant during project construction and painting for ROG and will temporarily exceed significance thresholds by a small margin.

Recommended construction activity mitigation including Best Available Control Measures (BACMs) are as follows:

Dust Control

Standard Mitigation Measures

All disturbed areas, including Bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water m chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover.

All on site and off site paved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

All unpaved traffic areas one (1) acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emission shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

The transport of Bulk Materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material.

All Track-Out or Carry-Out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.

Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers or by sheltering or enclosing the operation and transfer line.

The construction of any new Unpaved Road is prohibited within any area with a population of 500 or more unless the road meets the definition of a Temporary Unpaved Road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

Discretionary Mitigation Measures

- Water exposed surfaces and unpaved haul routes at least three times daily.
- Cover all stockpiles with tarps when left unattended for more than 72 hours.
- Reduce speed on unpaved roads and haul routes to less than 15 mph.
- Develop a trip reduction plan to achieve a 1.5 AVR for construction employees.
- Implement a shuttle service to and from retail services and food establishments during lunch hours.

Painting and Coatings

- Use low VOC coatings and high pressure-low volume sprayers.

Construction Equipment Emissions Mitigation

- Use of alternative fueled or catalyst equipped diesel construction equipment including all off-road portable diesel powered equipment.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.
- Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use.
- Replace fossil fueled equipment with electrically driven equipment (provided they are not run via a portable generator set).
- Require 90-day low-NOx tune-ups for off-road equipment.
- Require use of Tier 3-rated engines for scrapers and dozers used in grading if locally available.
- Require installation of soot filters on all diesel equipment >100 HP.
- Replace fossil-fueled equipment with line-powered electrical equipment where feasible.
- Curtail construction activities during periods of high ambient pollution levels upon the advice of the ICAPCD.

Off-Site Impacts

- Encourage car pooling for construction workers.
- Limit lane closures to off-peak travel periods.
- Park construction vehicles off traveled roadways.
- Implement a shuttle service during lunch hours, or allow food service trucks on construction sites.
- Encourage receipt of construction materials during non-peak traffic hours.
- Sandbag construction sites for erosion control.

OPERATIONAL EMISSIONS MITIGATION

Operational emissions for all phases are forecast to exceed ICAPCD thresholds by a wide margin. ICAPCD regulations for major projects require mitigation to off-set operational emissions to a net-zero level. However, because most photochemical smog derives from sources outside of Imperial County, there is only a limited benefit from in-County emissions off-sets as air quality impact mitigation for ozone. Nevertheless, the project will comply with the adopted rule to either procure emissions off-sets, or to pay an in-lieu fee to allow the APCD to fund alternative pollution control programs.

Mitigation Measures for Commercial Projects

Standard Site Design Measures

- Provide on-site bicycle lockers and/or racks.
- Provide on-site eating, refrigeration and food vending facilities to reduce lunchtime trips.
- Provide shower and locker facilities to encourage employees to bike and/or walk to work.
- Provide for paving a minimum of 100 feet from the property line for commercial driveways that access County paved roads as per County Standard Commercial Driveway Detail 410B.

Discretionary Mitigation Measures

- Increase street tree planting.
- Shade tree plants in parking lots to reduce evaporative emissions from parked vehicles.
- Increase number of bicycles routes/lanes.
- If the project is located on an established transit route, improve public transit accessibility by providing transit turnouts with direct pedestrian access to protect or improve transit stop amenities.
- For bus service within a _ mile of the project provide bus stop improvements such as shelters, route information, benches and lighting.
- Implement on-site circulation design elements in parking lots to reduce vehicle queuing and improve the pedestrian environment.
- Provide pedestrian signalization and signage to improve pedestrian safety.
- Synchronize traffic lights on streets impacted by development.

Discretionary Energy Efficiency Measures

- Use roof material with a solar reflectance value meeting the EPA/DOE Energy Star rating to reduce summer cooling needs.
- Use built-in energy efficient appliances, where applicable.
- Use double-paned windows.
- Use low energy parking lot and street lights (i.e. sodium).
- Use energy efficient interior lighting.
- Use low energy traffic signals.
- Install door sweeps and weather stripping if more efficient doors and windows are not available.
- Install high efficiency gas/electric space heating.

APPENDIX

URBEMIS2007 Model Output

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara\Application Data\Urbemis\Version9a\Projects\Calexico Construction 2012 Casino Phsae Indus. Density Alternative.urb924

Project Name: Calexico Construction 2012 Casino Phase Indus Density Alternative

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	3.07	25.08	13.92	0.00	33.70	1.25	34.95	7.04	1.15	8.19	2,314.51
2010 TOTALS (lbs/day mitigated)	3.07	25.08	13.92	0.00	8.66	1.25	9.91	1.81	1.15	2.96	2,314.51
2011 TOTALS (lbs/day unmitigated)	49.29	36.86	51.95	0.02	0.09	2.76	2.85	0.03	2.53	2.56	4,916.56
2011 TOTALS (lbs/day mitigated)	45.17	32.38	51.95	0.02	0.09	0.75	0.83	0.03	0.68	0.71	4,916.56

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 9/1/2010-12/31/2010 Active Days: 88	3.07	25.08	13.92	0.00	**33.70**	1.25	**34.95**	**7.04**	1.15	**8.19**	2,314.51
Fine Grading 09/01/2010-12/31/2010	3.07	25.08	13.92	0.00	33.70	1.25	34.95	7.04	1.15	8.19	2,314.51
Fine Grading Dust	0.00	0.00	0.00	0.00	33.70	0.00	33.70	7.04	0.00	7.04	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00	67.19
Time Slice 1/3/2011-5/31/2011 Active Days: 107	4.72	18.76	37.85	0.01	0.08	1.23	1.30	0.03	1.12	1.15	3,195.27
Building 01/01/2011-12/31/2011	4.72	18.76	37.85	0.01	0.08	1.23	1.30	0.03	1.12	1.15	3,195.27
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.12	1.45	1.39	0.00	0.01	0.05	0.07	0.00	0.05	0.05	309.65
Building Worker Trips	1.22	1.64	25.61	0.01	0.06	0.04	0.10	0.02	0.03	0.05	1,264.42
Time Slice 6/1/2011-11/30/2011 Active Days: 131	45.89	18.80	38.51	0.01	0.08	1.23	1.31	0.03	1.12	1.15	3,227.55
Building 01/01/2011-12/31/2011	4.72	18.76	37.85	0.01	0.08	1.23	1.30	0.03	1.12	1.15	3,195.27
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.12	1.45	1.39	0.00	0.01	0.05	0.07	0.00	0.05	0.05	309.65
Building Worker Trips	1.22	1.64	25.61	0.01	0.06	0.04	0.10	0.02	0.03	0.05	1,264.42
Coating 06/01/2011-12/31/2011	41.18	0.04	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.28
Architectural Coating	41.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.04	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.28

Time Slice 12/1/2011-12/30/2011 Active Days: 22	**49.29**	**36.86**	**51.95**	**0.02**	0.09	**2.76**	2.85	0.03	**2.53**	2.56	**4,916.56**
Asphalt 12/01/2011-12/31/2011	3.39	18.05	13.45	0.00	0.01	1.53	1.55	0.00	1.41	1.41	1,689.01
Paving Off-Gas	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	17.10	10.16	0.00	0.00	1.50	1.50	0.00	1.38	1.38	1,418.44
Paving On Road Diesel	0.04	0.76	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	119.31
Paving Worker Trips	0.15	0.20	3.06	0.00	0.01	0.00	0.01	0.00	0.00	0.01	151.26
Building 01/01/2011-12/31/2011	4.72	18.76	37.85	0.01	0.08	1.23	1.30	0.03	1.12	1.15	3,195.27
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.12	1.45	1.39	0.00	0.01	0.05	0.07	0.00	0.05	0.05	309.65
Building Worker Trips	1.22	1.64	25.61	0.01	0.06	0.04	0.10	0.02	0.03	0.05	1,264.42
Coating 06/01/2011-12/31/2011	41.18	0.04	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.28
Architectural Coating	41.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.04	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.28

Phase Assumptions

Phase: Fine Grading 9/1/2010 - 12/31/2010 - Type Your Description Here

Total Acres Disturbed: 13.49

Maximum Daily Acreage Disturbed: 3.37

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 12/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 3.37

Off-Road Equipment:

1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 6/1/2011 - 12/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 9/1/2010-12/31/2010 Active Days: 88	3.07	25.08	13.92	0.00	8.66	1.25	9.91	1.81	1.15	2.96	2,314.51
Fine Grading 09/01/2010-12/31/2010	3.07	25.08	13.92	0.00	8.66	1.25	9.91	1.81	1.15	2.96	2,314.51
Fine Grading Dust	0.00	0.00	0.00	0.00	8.66	0.00	8.66	1.81	0.00	1.81	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00	67.19
Time Slice 1/3/2011-5/31/2011 Active Days: 107	4.72	16.41	37.85	0.01	0.08	0.26	0.34	0.03	0.23	0.26	3,195.27
Building 01/01/2011-12/31/2011	4.72	16.41	37.85	0.01	0.08	0.26	0.34	0.03	0.23	0.26	3,195.27
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.17	0.17	0.00	0.16	0.16	1,621.20
Building Vendor Trips	0.12	1.45	1.39	0.00	0.01	0.05	0.07	0.00	0.05	0.05	309.65
Building Worker Trips	1.22	1.64	25.61	0.01	0.06	0.04	0.10	0.02	0.03	0.05	1,264.42
Time Slice 6/1/2011-11/30/2011 Active Days: 131	41.78	16.45	38.51	0.01	0.08	0.26	0.34	0.03	0.23	0.26	3,227.55
Building 01/01/2011-12/31/2011	4.72	16.41	37.85	0.01	0.08	0.26	0.34	0.03	0.23	0.26	3,195.27
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.17	0.17	0.00	0.16	0.16	1,621.20
Building Vendor Trips	0.12	1.45	1.39	0.00	0.01	0.05	0.07	0.00	0.05	0.05	309.65
Building Worker Trips	1.22	1.64	25.61	0.01	0.06	0.04	0.10	0.02	0.03	0.05	1,264.42
Coating 06/01/2011-12/31/2011	37.06	0.04	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.28
Architectural Coating	37.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.04	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.28

Time Slice 12/1/2011-12/30/2011 Active Days: 22	45.17	32.38	**51.95**	**0.02**	0.09	0.75	0.83	0.03	0.68	0.71	**4,916.56**
Asphalt 12/01/2011-12/31/2011	3.39	15.93	13.45	0.00	0.01	0.48	0.50	0.00	0.44	0.45	1,689.01
Paving Off-Gas	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	14.97	10.16	0.00	0.00	0.45	0.45	0.00	0.41	0.41	1,418.44
Paving On Road Diesel	0.04	0.76	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	119.31
Paving Worker Trips	0.15	0.20	3.06	0.00	0.01	0.00	0.01	0.00	0.00	0.01	151.26
Building 01/01/2011-12/31/2011	4.72	16.41	37.85	0.01	0.08	0.26	0.34	0.03	0.23	0.26	3,195.27
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.17	0.17	0.00	0.16	0.16	1,621.20
Building Vendor Trips	0.12	1.45	1.39	0.00	0.01	0.05	0.07	0.00	0.05	0.05	309.65
Building Worker Trips	1.22	1.64	25.61	0.01	0.06	0.04	0.10	0.02	0.03	0.05	1,264.42
Coating 06/01/2011-12/31/2011	37.06	0.04	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.28
Architectural Coating	37.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.04	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.28

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 9/1/2010 - 12/31/2010 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Paving 12/1/2011 - 12/31/2011 - Default Paving Description

For Cement and Mortar Mixers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cement and Mortar Mixers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Pavers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 6/1/2011 - 12/31/2011 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

3/11/2008 12:52:36 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara\Application Data\Urbemis\Version9a\Projects\Calexico Construction 2012 Retail Phase Industrial Density Alternative.urb924

Project Name: Calexico Construction 2012 Retail Phase Industrial Density Alternative

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
010 TOTALS (lbs/day unmitigated)	4.25	33.79	19.30	0.00	96.70	1.80	98.50	20.20	1.65	21.85	3,091.47
010 TOTALS (lbs/day mitigated)	4.25	33.79	19.30	0.00	24.84	1.80	26.64	5.19	1.65	6.84	3,091.47
011 TOTALS (lbs/day unmitigated)	129.00	41.17	101.68	0.05	0.24	2.72	2.96	0.09	2.48	2.57	7,835.04
011 TOTALS (lbs/day mitigated)	117.20	36.80	101.68	0.05	0.24	0.74	0.98	0.09	0.66	0.74	7,835.04

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 9/1/2010-12/31/2010 Active Days: 88	4.25	33.79	19.30	0.00	**96.70**	1.80	**98.50**	**20.20**	1.65	**21.85**	3,091.47
Fine Grading 09/01/2010-12/31/2010	4.25	33.79	19.30	0.00	96.70	1.80	98.50	20.20	1.65	21.85	3,091.47
Fine Grading Dust	0.00	0.00	0.00	0.00	96.70	0.00	96.70	20.19	0.00	20.19	0.00
Fine Grading Off Road Diesel	4.16	33.67	17.48	0.00	0.00	1.79	1.79	0.00	1.65	1.65	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.12	1.82	0.00	0.00	0.00	0.01	0.00	0.00	0.00	83.99
Time Slice 1/3/2011-5/31/2011 Active Days: 107	7.20	24.53	88.26	0.04	0.22	1.40	1.61	0.08	1.27	1.34	6,133.78
Building 01/01/2011-12/31/2011	7.20	24.53	88.26	0.04	0.22	1.40	1.61	0.08	1.27	1.34	6,133.78
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.33	4.15	4.00	0.01	0.03	0.15	0.19	0.01	0.14	0.15	887.71
Building Worker Trips	3.48	4.71	73.42	0.03	0.18	0.11	0.29	0.07	0.08	0.15	3,624.87
Time Slice 6/1/2011-11/30/2011 Active Days: 131	125.25	24.65	90.14	0.04	0.22	1.40	1.62	0.08	1.27	1.35	6,226.32
Building 01/01/2011-12/31/2011	7.20	24.53	88.26	0.04	0.22	1.40	1.61	0.08	1.27	1.34	6,133.78
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.33	4.15	4.00	0.01	0.03	0.15	0.19	0.01	0.14	0.15	887.71
Building Worker Trips	3.48	4.71	73.42	0.03	0.18	0.11	0.29	0.07	0.08	0.15	3,624.87
Coating 06/01/2011-12/31/2011	118.05	0.12	1.87	0.00	0.00	0.00	0.01	0.00	0.00	0.00	92.55
Architectural Coating	117.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.09	0.12	1.87	0.00	0.00	0.00	0.01	0.00	0.00	0.00	92.55

Time Slice 12/1/2011-12/30/2011 Active Days: 22	**129.00**	**41.17**	**101.68**	**0.05**	0.24	**2.72**	2.96	0.09	**2.48**	2.57	**7,835.04**
Asphalt 12/01/2011-12/31/2011	3.75	16.52	11.54	0.00	0.02	1.32	1.34	0.01	1.21	1.22	1,608.71
Paving Off-Gas	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.13	2.17	0.65	0.00	0.01	0.08	0.09	0.00	0.07	0.08	342.35
Paving Worker Trips	0.13	0.17	2.72	0.00	0.01	0.00	0.01	0.00	0.00	0.01	134.45
Building 01/01/2011-12/31/2011	7.20	24.53	88.26	0.04	0.22	1.40	1.61	0.08	1.27	1.34	6,133.78
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.33	4.15	4.00	0.01	0.03	0.15	0.19	0.01	0.14	0.15	887.71
Building Worker Trips	3.48	4.71	73.42	0.03	0.18	0.11	0.29	0.07	0.08	0.15	3,624.87
Coating 06/01/2011-12/31/2011	118.05	0.12	1.87	0.00	0.00	0.00	0.01	0.00	0.00	0.00	92.55
Architectural Coating	117.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.09	0.12	1.87	0.00	0.00	0.00	0.01	0.00	0.00	0.00	92.55

Phase Assumptions

Phase: Fine Grading 9/1/2010 - 12/31/2010 - Type Your Description Here

Total Acres Disturbed: 38.68

Maximum Daily Acreage Disturbed: 9.67

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 12/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 9.67

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 6/1/2011 - 12/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 9/1/2010-12/31/2010 Active Days: 88	4.25	33.79	19.30	0.00	24.84	1.80	26.64	5.19	1.65	6.84	3,091.47
Fine Grading 09/01/2010-12/31/2010	4.25	33.79	19.30	0.00	24.84	1.80	26.64	5.19	1.65	6.84	3,091.47
Fine Grading Dust	0.00	0.00	0.00	0.00	24.84	0.00	24.84	5.19	0.00	5.19	0.00
Fine Grading Off Road Diesel	4.16	33.67	17.48	0.00	0.00	1.79	1.79	0.00	1.65	1.65	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.12	1.82	0.00	0.00	0.00	0.01	0.00	0.00	0.00	83.99
Time Slice 1/3/2011-5/31/2011 Active Days: 107	7.20	22.18	88.26	0.04	0.22	0.43	0.65	0.08	0.38	0.45	6,133.78
Building 01/01/2011-12/31/2011	7.20	22.18	88.26	0.04	0.22	0.43	0.65	0.08	0.38	0.45	6,133.78
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.17	0.17	0.00	0.16	0.16	1,621.20
Building Vendor Trips	0.33	4.15	4.00	0.01	0.03	0.15	0.19	0.01	0.14	0.15	887.71
Building Worker Trips	3.48	4.71	73.42	0.03	0.18	0.11	0.29	0.07	0.08	0.15	3,624.87
Time Slice 6/1/2011-11/30/2011 Active Days: 131	113.45	22.30	90.14	0.04	0.22	0.43	0.65	0.08	0.38	0.46	6,226.32
Building 01/01/2011-12/31/2011	7.20	22.18	88.26	0.04	0.22	0.43	0.65	0.08	0.38	0.45	6,133.78
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.17	0.17	0.00	0.16	0.16	1,621.20
Building Vendor Trips	0.33	4.15	4.00	0.01	0.03	0.15	0.19	0.01	0.14	0.15	887.71
Building Worker Trips	3.48	4.71	73.42	0.03	0.18	0.11	0.29	0.07	0.08	0.15	3,624.87
Coating 06/01/2011-12/31/2011	106.25	0.12	1.87	0.00	0.00	0.00	0.01	0.00	0.00	0.00	92.55
Architectural Coating	106.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.09	0.12	1.87	0.00	0.00	0.00	0.01	0.00	0.00	0.00	92.55

Time Slice 12/1/2011-12/30/2011 Active Days: 22	117.20	36.80	**101.68**	**0.05**	0.24	0.74	0.98	0.09	0.66	0.74	**7,835.04**
Asphalt 12/01/2011-12/31/2011	3.75	14.50	11.54	0.00	0.02	0.30	0.32	0.01	0.28	0.28	1,608.71
Paving Off-Gas	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	12.15	8.17	0.00	0.00	0.22	0.22	0.00	0.20	0.20	1,131.92
Paving On Road Diesel	0.13	2.17	0.65	0.00	0.01	0.08	0.09	0.00	0.07	0.08	342.35
Paving Worker Trips	0.13	0.17	2.72	0.00	0.01	0.00	0.01	0.00	0.00	0.01	134.45
Building 01/01/2011-12/31/2011	7.20	22.18	88.26	0.04	0.22	0.43	0.65	0.08	0.38	0.45	6,133.78
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.17	0.17	0.00	0.16	0.16	1,621.20
Building Vendor Trips	0.33	4.15	4.00	0.01	0.03	0.15	0.19	0.01	0.14	0.15	887.71
Building Worker Trips	3.48	4.71	73.42	0.03	0.18	0.11	0.29	0.07	0.08	0.15	3,624.87
Coating 06/01/2011-12/31/2011	106.25	0.12	1.87	0.00	0.00	0.00	0.01	0.00	0.00	0.00	92.55
Architectural Coating	106.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.09	0.12	1.87	0.00	0.00	0.00	0.01	0.00	0.00	0.00	92.55

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 9/1/2010 - 12/31/2010 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Paving 12/1/2011 - 12/31/2011 - Default Paving Description

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Pavers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

3/11/2008 12:52:36 PM

NOX: 15%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

1/11/2008 12:52:36 PM

The following mitigation measures apply to Phase: Architectural Coating 6/1/2011 - 12/31/2011 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

3/11/2008 1:02:52 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara\Application Data\Urbemis\Version9a\Projects\Calexico 2018 Industrial Density Alterntive.urb924

Project Name: Calexico Construction 2018 Reduced Casino

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2016 TOTALS (lbs/day unmitigated)	2.96	21.86	15.54	0.00	84.40	1.07	85.47	17.63	0.98	18.61	3,091.75
2016 TOTALS (lbs/day mitigated)	2.96	18.59	15.54	0.00	7.83	0.16	7.99	1.64	0.15	1.78	3,091.75
2017 TOTALS (lbs/day unmitigated)	112.23	37.65	87.36	0.10	0.44	2.06	2.50	0.15	1.87	2.02	12,901.37
2017 TOTALS (lbs/day mitigated)	101.87	34.66	87.36	0.10	0.44	0.89	1.32	0.15	0.79	0.94	12,901.37

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 8/1/2016-12/30/2016 Active Days: 110	2.96	21.86	15.54	0.00	84.40	1.07	85.47	17.63	0.98	18.61	3,091.75
Fine Grading 08/01/2016-12/31/2016	2.96	21.86	15.54	0.00	84.40	1.07	85.47	17.63	0.98	18.61	3,091.75
Fine Grading Dust	0.00	0.00	0.00	0.00	84.40	0.00	84.40	17.63	0.00	17.63	0.00
Fine Grading Off Road Diesel	2.90	21.78	14.34	0.00	0.00	1.06	1.06	0.00	0.98	0.98	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.08	1.21	0.00	0.00	0.00	0.01	0.00	0.00	0.00	84.27
Time Slice 1/11/2017-5/31/2017 Active Days: 101	5.73	26.41	76.36	0.09	0.41	1.22	1.63	0.14	1.09	1.24	11,240.00
Building 01/11/2017-12/31/2017	5.73	26.41	76.36	0.09	0.41	1.22	1.63	0.14	1.09	1.24	11,240.00
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	1.17	12.51	13.77	0.05	0.21	0.50	0.72	0.07	0.46	0.53	5,616.66
Building Worker Trips	2.58	3.49	53.38	0.04	0.20	0.11	0.31	0.07	0.08	0.16	4,002.15
Time Slice 6/1/2017-11/30/2017 Active Days: 131	109.36	26.48	77.45	0.09	0.42	1.22	1.63	0.15	1.09	1.24	11,321.53
Building 01/11/2017-12/31/2017	5.73	26.41	76.36	0.09	0.41	1.22	1.63	0.14	1.09	1.24	11,240.00
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	1.17	12.51	13.77	0.05	0.21	0.50	0.72	0.07	0.46	0.53	5,616.66
Building Worker Trips	2.58	3.49	53.38	0.04	0.20	0.11	0.31	0.07	0.08	0.16	4,002.15
Coating 06/01/2017-12/31/2017	103.64	0.07	1.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	81.53
Architectural Coating	103.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.07	1.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	81.53

Time Slice 12/1/2017-12/29/2017 Active Days: 21	112.23	37.65	87.36	**0.10**	0.44	2.06	2.50	0.15	1.87	2.02	**12,901.37**
Asphalt 12/01/2017-12/31/2017	2.86	11.17	9.90	0.00	0.02	0.84	0.86	0.01	0.78	0.78	1,579.83
Paving Off-Gas	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.66	10.19	7.79	0.00	0.00	0.81	0.81	0.00	0.74	0.74	1,131.92
Paving On Road Diesel	0.06	0.87	0.31	0.00	0.01	0.03	0.04	0.00	0.03	0.03	313.03
Paving Worker Trips	0.09	0.12	1.80	0.00	0.01	0.00	0.01	0.00	0.00	0.01	134.89
Building 01/11/2017-12/31/2017	5.73	26.41	76.36	0.09	0.41	1.22	1.63	0.14	1.09	1.24	11,240.00
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	1.17	12.51	13.77	0.05	0.21	0.50	0.72	0.07	0.46	0.53	5,616.66
Building Worker Trips	2.58	3.49	53.38	0.04	0.20	0.11	0.31	0.07	0.08	0.16	4,002.15
Coating 06/01/2017-12/31/2017	103.64	0.07	1.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	81.53
Architectural Coating	103.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.07	1.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	81.53

Phase Assumptions

Phase: Fine Grading 8/1/2016 - 12/31/2016 - Default Fine Site Grading Description

Total Acres Disturbed: 33.75

Maximum Daily Acreage Disturbed: 8.44

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 12/1/2017 - 12/31/2017 - Default Paving Description
Acres to be Paved: 8.44
Off-Road Equipment:
Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/11/2017 - 12/31/2017 - Default Building Construction Description
Off-Road Equipment:
Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 6/1/2017 - 12/31/2017 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 8/1/2016-12/30/2016 Active Days: 110	2.96	18.59	15.54	0.00	7.83	0.16	7.99	1.64	0.15	1.78	3,091.75
Fine Grading 08/01/2016-12/31/2016	2.96	18.59	15.54	0.00	7.83	0.16	7.99	1.64	0.15	1.78	3,091.75
Fine Grading Dust	0.00	0.00	0.00	0.00	7.82	0.00	7.82	1.63	0.00	1.63	0.00
Fine Grading Off Road Diesel	2.90	18.52	14.34	0.00	0.00	0.16	0.16	0.00	0.15	0.15	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.08	1.21	0.00	0.00	0.00	0.01	0.00	0.00	0.00	84.27
Time Slice 1/11/2017-5/31/2017 Active Days: 101	5.73	24.85	76.36	0.09	0.41	0.70	1.12	0.14	0.62	0.77	11,240.00
Building 01/11/2017-12/31/2017	5.73	24.85	76.36	0.09	0.41	0.70	1.12	0.14	0.62	0.77	11,240.00
Building Off Road Diesel	1.98	8.85	9.21	0.00	0.00	0.09	0.09	0.00	0.08	0.08	1,621.20
Building Vendor Trips	1.17	12.51	13.77	0.05	0.21	0.50	0.72	0.07	0.46	0.53	5,616.66
Building Worker Trips	2.58	3.49	53.38	0.04	0.20	0.11	0.31	0.07	0.08	0.16	4,002.15
Time Slice 6/1/2017-11/30/2017 Active Days: 131	99.01	24.92	77.45	0.09	0.42	0.71	1.12	0.15	0.62	0.77	11,321.53
Building 01/11/2017-12/31/2017	5.73	24.85	76.36	0.09	0.41	0.70	1.12	0.14	0.62	0.77	11,240.00
Building Off Road Diesel	1.98	8.85	9.21	0.00	0.00	0.09	0.09	0.00	0.08	0.08	1,621.20
Building Vendor Trips	1.17	12.51	13.77	0.05	0.21	0.50	0.72	0.07	0.46	0.53	5,616.66
Building Worker Trips	2.58	3.49	53.38	0.04	0.20	0.11	0.31	0.07	0.08	0.16	4,002.15
Coating 06/01/2017-12/31/2017	93.28	0.07	1.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	81.53
Architectural Coating	93.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.07	1.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	81.53

Time Slice 12/1/2017-12/29/2017 Active Days: 21	101.87	34.66	87.36	**0.10**	0.44	0.89	1.32	0.15	0.79	0.94	**12,901.37**
Asphalt 12/01/2017-12/31/2017	2.86	9.75	9.90	0.00	0.02	0.18	0.20	0.01	0.17	0.17	1,579.83
Paving Off-Gas	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.66	8.76	7.79	0.00	0.00	0.14	0.14	0.00	0.13	0.13	1,131.92
Paving On Road Diesel	0.06	0.87	0.31	0.00	0.01	0.03	0.04	0.00	0.03	0.03	313.03
Paving Worker Trips	0.09	0.12	1.80	0.00	0.01	0.00	0.01	0.00	0.00	0.01	134.89
Building 01/11/2017-12/31/2017	5.73	24.85	76.36	0.09	0.41	0.70	1.12	0.14	0.62	0.77	11,240.00
Building Off Road Diesel	1.98	8.85	9.21	0.00	0.00	0.09	0.09	0.00	0.08	0.08	1,621.20
Building Vendor Trips	1.17	12.51	13.77	0.05	0.21	0.50	0.72	0.07	0.46	0.53	5,616.66
Building Worker Trips	2.58	3.49	53.38	0.04	0.20	0.11	0.31	0.07	0.08	0.16	4,002.15
Coating 06/01/2017-12/31/2017	93.28	0.07	1.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	81.53
Architectural Coating	93.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.07	1.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	81.53

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 8/1/2016 - 12/31/2016 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

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For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Graders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Paving 12/1/2017 - 12/31/2017 - Default Paving Description

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Pavers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Building Construction 1/11/2017 - 12/31/2017 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 6/1/2017 - 12/31/2017 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara\Application Data\Urbemis\Version9a\Projects\Calexico 2018 Industrial Density Operational.urb924

Project Name: Calexico 2018 Industrial Density Operational

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	10.81	10.64	21.15	0.00	0.06	0.06	12,583.55

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	366.59	673.81	4,848.97	5.27	939.74	182.69	571,784.20

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	377.40	684.45	4,870.12	5.27	939.80	182.75	584,367.75

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.76	10.47	8.79	0.00	0.02	0.02	12,561.08
Hearth - No Summer Emissions							
Landscape	0.98	0.17	12.36	0.00	0.04	0.04	22.47
Consumer Products	0.00						
Architectural Coatings	9.07						
TOTALS (lbs/day, unmitigated)	10.81	10.64	21.15	0.00	0.06	0.06	12,583.55

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Quality resturant	34.36	64.22	462.07	0.50	89.53	17.41	54,484.04
Fast food rest. w/ drive thru	21.42	40.82	293.45	0.32	56.80	11.04	34,592.71
Hotel	7.76	11.43	82.15	0.09	15.90	3.09	9,683.87
Motel	11.88	19.31	138.80	0.15	26.87	5.22	16,362.40
Regnl shop. center	165.38	308.62	2,216.87	2.41	428.66	83.33	261,266.77
Office park	20.93	39.15	284.04	0.31	55.59	10.81	33,573.56
Industrial park	44.83	77.29	560.09	0.61	109.48	21.29	66,182.78
Casino	60.03	112.97	811.50	0.88	156.91	30.50	95,638.07
TOTALS (lbs/day, unmitigated)	366.59	673.81	4,848.97	5.27	939.74	182.69	571,784.20

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2018 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Quality resturant		51.00	1000 sq ft	100.00	5,100.00	51,754.80
Fast food rest. w/ drive thru		331.50	1000 sq ft	10.00	3,315.00	32,835.07
Hotel		4.64	rooms	200.00	928.00	9,191.84
Motel		7.84	rooms	200.00	1,568.00	15,531.04
Regnl shop. center		62.40	1000 sq ft	411.00	25,646.40	247,795.52
Office park		20.00	1000 sq ft	120.00	2,400.00	32,131.20
Industrial park		8.00	1000 sq ft	615.00	4,920.00	63,278.58
Casino		100.00	1000 sq ft	93.88	9,388.00	90,706.85
					53,265.40	543,224.90

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	43.8	0.0	100.0	0.0
Light Truck < 3750 lbs	15.4	0.0	97.4	2.6
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	9.2	0.0	100.0	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Lite-Heavy Truck 8501-10,000 lbs	1.4	0.0	78.6	21.4
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.2	0.0	25.0	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	4.3	0.0	2.3	97.7
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.1	41.9	58.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	7.3	3.9	3.7	6.7	8.9	5.0
Rural Trip Length (miles)	10.2	11.7	8.1	16.4	11.9	9.5
Trip speeds (mph)	40.0	40.0	40.0	45.0	45.0	40.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Quality resturant				8.0	4.0	88.0
Fast food rest. w/ drive thru				5.0	2.5	92.5
Hotel				5.0	2.5	92.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Motel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
Office park				48.0	24.0	28.0
Industrial park				41.5	20.8	37.8
Casino				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara\Application Data\Urbemis\Version9a\Projects\Calexico Industrial Density 2012 Rest. and Retail Operational.urb924

Project Name: Calexico Industrial Density 2012 Rest. and Retail Operational

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.83	5.73	9.40	0.00	0.03	0.03	6,812.03

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	305.84	637.34	4,228.44	2.86	517.56	104.40	308,098.92

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	309.67	643.07	4,237.84	2.86	517.59	104.43	314,910.95

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.41	5.67	4.76	0.00	0.01	0.01	6,803.60
Hearth - No Summer Emissions							
Landscape	0.37	0.06	4.64	0.00	0.02	0.02	8.43
Consumer Products	0.00						
Architectural Coatings	3.05						
TOTALS (lbs/day, unmitigated)	3.83	5.73	9.40	0.00	0.03	0.03	6,812.03

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Fast food rest. w/ drive thru	33.10	70.59	468.62	0.32	57.38	11.57	34,135.45
Hotel	17.91	33.39	221.66	0.15	27.14	5.47	16,146.12
Regnl shop. center	254.83	533.36	3,538.16	2.39	433.04	87.36	257,817.35
TOTALS (lbs/day, unmitigated)	305.84	637.34	4,228.44	2.86	517.56	104.40	308,098.92

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

3/7/2008 3:12:14 PM

Analysis Year: 2012 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Fast food rest. w/ drive thru		331.50	1000 sq ft	10.00	3,315.00	32,835.07
Hotel		7.84	rooms	200.00	1,568.00	15,531.04
Regnl shop. center		62.40	1000 sq ft	411.00	25,646.40	247,795.52
					30,529.40	296,161.63

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	43.7	0.9	98.9	0.2
Light Truck < 3750 lbs	15.6	1.9	93.6	4.5
Light Truck 3751-5750 lbs	19.9	1.0	98.5	0.5
Med Truck 5751-8500 lbs	9.3	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.4	0.0	71.4	28.6
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.2	8.3	25.0	66.7
Heavy-Heavy Truck 33,001-60,000 lbs	4.0	0.0	2.5	97.5
Other Bus	0.1	0.0	100.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.1	58.1	41.9	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	11.1	77.8	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Irban Trip Length (miles)	7.3	3.9	3.7	6.7	8.9	5.0
ural Trip Length (miles)	10.2	11.7	8.1	16.4	11.9	9.5
rip speeds (mph)	40.0	40.0	40.0	45.0	45.0	40.0
of Trips - Residential	32.9	18.0	49.1			
of Trips - Commercial (by land use)						
ast food rest. w/ drive thru				5.0	2.5	92.5
otel				5.0	2.5	92.5
egnl shop. center				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara\Application Data\Urbemis\Version9a\Projects\Calexico 2012 Operational Industrial Density Casino and Hotel.urb924

Project Name: Calexico Industrial Density 2012 Casino and Hotel Operational

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2.32	3.25	7.32	0.00	0.03	0.03	3,839.47

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	157.09	326.14	2,164.68	1.47	265.02	53.46	157,694.28

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	159.41	329.39	2,172.00	1.47	265.05	53.49	161,533.75

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.23	3.19	2.68	0.00	0.01	0.01	3,831.04
Hearth - No Summer Emissions							
Landscape	0.37	0.06	4.64	0.00	0.02	0.02	8.43
Consumer Products	0.00						
Architectural Coatings	1.72						
TOTALS (lbs/day, unmitigated)	2.32	3.25	7.32	0.00	0.03	0.03	3,839.47

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Quality resturant	52.92	111.14	738.33	0.50	90.44	18.24	53,763.02
Hotel	11.54	19.76	131.19	0.09	16.06	3.24	9,555.86
Casino	92.63	195.24	1,295.16	0.88	158.52	31.98	94,375.40
TOTALS (lbs/day, unmitigated)	157.09	326.14	2,164.68	1.47	265.02	53.46	157,694.28

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

3/7/2008 2:54:36 PM

Analysis Year: 2012 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Quality resturant		51.00	1000 sq ft	100.00	5,100.00	51,754.80
Hotel		4.64	rooms	200.00	928.00	9,191.84
Casino		100.00	1000 sq ft	93.88	9,388.00	90,706.85
					15,416.00	151,653.49

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	43.7	0.9	98.9	0.2
Light Truck < 3750 lbs	15.6	1.9	93.6	4.5
Light Truck 3751-5750 lbs	19.9	1.0	98.5	0.5
Med Truck 5751-8500 lbs	9.3	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.4	0.0	71.4	28.6
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.2	8.3	25.0	66.7
Heavy-Heavy Truck 33,001-60,000 lbs	4.0	0.0	2.5	97.5
Other Bus	0.1	0.0	100.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.1	58.1	41.9	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	11.1	77.8	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	7.3	3.9	3.7	6.7	8.9	5.0
Rural Trip Length (miles)	10.2	11.7	8.1	16.4	11.9	9.5
Trip speeds (mph)	40.0	40.0	40.0	45.0	45.0	40.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Quality resturant				8.0	4.0	88.0
Hotel				5.0	2.5	92.5
Casino				2.0	1.0	97.0